

REMARKS

Applicants appreciate the Examiner's thorough consideration provided the present application. Claims 1-17 and 19-44 are now present in the application. Claims 1-13 have been withdrawn. Claim 44 has been added. Claims 1, 14 and 30 are independent. Reconsideration of this application, as amended, is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 14-17 and 19-43 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Davies, U.S. Patent No. 6,922,586, in view of Stemme, U.S. Patent Application Publication No. 2004/0054393. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Independent claim 14 recites a combination of steps including "(i) placing an electrical conducting probe against a skin surface of the subject, wherein the probe comprises a plurality of electrodes, each electrode furnished with a number of spikes, the spikes being laterally spaced apart from each other and being of sufficient length to penetrate the stratum corneum, wherein a first electrode and a second electrode of the plurality of electrodes are spaced a first distance from each other and wherein the first electrode and a third electrode of said plurality of electrodes are spaced a second distance from each other; (ii) passing an electrical current through the electrodes to obtain a value of skin impedance, wherein said electrical current is separately passed between the first and the second electrode and between the first and the third electrode to obtain at least a first value of impedance and at least a second value of impedance; and (iii) using reference data to determine whether the impedance value indicates the diseased condition."

Independent claim 30 recites a combination of elements including "an electrically conducting probe including plurality of electrodes, each electrode comprising at least one spike,

which spikes are laterally spaced apart from each other and having a length being sufficient to penetrate the stratum corneum, wherein a first electrode and a second electrode of the plurality of electrodes are spaced a first distance from each other and wherein the first electrode and a third electrode of said plurality of electrodes are spaced a second distance from each other, wherein said apparatus is adapted to, when placed against a skin surface of the subject such that said spikes penetrate the stratum corneum, pass an electrical current through the electrodes to obtain values of skin impedance, wherein said electrical current is separately passed between the first and the second electrode and between the first and the third electrode to obtain at least a first value of impedance and at least a second value of impedance, and to use reference data to determine whether the obtained impedance values indicate the diseased condition.”

Applicants respectfully submit that the combinations of steps and elements set forth in claims 14 and 30 are not disclosed or suggested by the references relied on by the Examiner.

The Examiner alleged that Davies in FIG. 3 and the corresponding description discloses “passing/pass an electrical current through the electrodes to obtain a value of skin impedance, wherein said electrical current is separately passed between the first and the second electrode and between the first and the third electrode to obtain at least a first value of impedance and at least a second value of impedance” as recited in claims 14 and 30. Applicants respectfully disagree.

In particular, Davies in FIG. 3 discloses a probe surface to be placed in contact with tissue for voltage measurement and thus, indirect, impedance measurement. As shown in FIG. 3 of Davies, two current passing electrodes 5 and two voltage sensing electrodes 8 between the current passing electrodes 5 are disclosed. This pattern is repeated four times at 90° angles in order to cover a larger tissue area. Therefore, FIG. 3 of Davies simply discloses a four-point measurement where an electrical current is passed between the two passing electrodes 5 furthest away from each other and voltage is measured at the two voltage sensing electrodes 8 linearly positioned between the two current passing electrodes 5. In other words, Davies differs from the claimed invention as set forth in claims 14 and 30 because:

(1) In the claimed invention, current is passed between the first and second electrodes and between the first and third electrodes. In FIG. 3 of Davies, the current is passed between first and fourth electrodes only; and

(2) In the claimed invention, the current is passed separately between the first and second electrodes and between the first and third electrodes. According to FIG. 3 and the text of Davies, the measurements are performed simultaneously at the two voltage sensing electrodes 8, and there is no separate current because the current is only passed between first and fourth electrodes only.

Applicants respectfully submit that in the claimed invention, impedance is measured between the first and second electrodes and then, sequentially, between the first and third electrodes. In other words, the three electrodes of the claimed invention are both current passing and voltage sensing. Unlike the claimed invention, Davies in FIG. 3 requires dedicated current passing electrodes and voltage sensing electrodes.

In addition, in the claimed invention, the current is passed separately, not simultaneously passed to the second and third electrodes. In other words, a sequence of current passing and impedance measuring is performed. Therefore, two two-point measurements are performed, in contrast to the single four-point measurement of Davies.

Furthermore, Davies in col. 6, lines 61-67 discloses:

A signal is established between the current-passing electrodes. One or more of the measuring electrodes measures impedance associated with the established signal. Alternatively a three electrode system may be used for measurements whereby one electrode is used for both current injection and voltage recording....(emphasis added.)

In other words, Davies further discloses a three-point measurement, where one of the electrodes is both a current injecting (passing) electrode and a voltage recording (sensing) electrode. However, there is still no two-point measurement, not to mention the fact that there are no two separate two-point measurements in Davies.

Applicants respectfully submit that an advantage with separately passing current between three different electrodes is that, depending on the distance between the different electrodes, the impedance at different tissue depths may be measured. First, the impedance at a first depth relating to the distance between the first and second electrodes may be measured and, second, the impedance at a second depth relating to the distance between the first and the third electrodes may be measured. These features are clearly absent from Davies.

With regard to the Examiner's reliance on Stemme, this reference has only been relied on for its teachings against some other features in claims 14 and 30. This reference also fails to disclose the above combinations of elements as set forth in independent claims 14 and 30. Accordingly, this reference fails to cure the deficiencies of Davies

Accordingly, neither of the utilized references individually or in combination teaches or suggests the limitations of independent claims 14 and 30. Therefore, Applicants respectfully submit that independent claims 14 and 30 clearly define over the teachings of the utilized references.

In addition, claims 15-17, 19-29 and 31-43 depend, either directly or indirectly, from independent claims 14 and 30, and are therefore allowable based on their respective dependence from independent claims 14 and 30, which are believed to be allowable.

In view of the above remarks, Applicants respectfully submit that claims 14-17 and 19-43 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 are respectfully requested.

Additional Claim

Claim 44 has been added for the Examiner's consideration. Applicants respectively submit that claim 44 is allowable due to its dependence on independent claim 14, as well as due to the additional recitations included in this claim. Favorable consideration and allowance of claim 44 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Cheng-Kang (Greg) Hsu, Registration No. 61,007 at (703) 205-8000 in the Washington, D.C. area.


Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants respectfully petition for a three (3) month extension of time for filing a response in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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